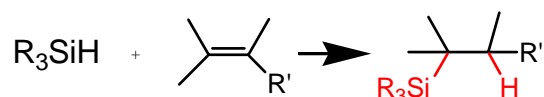
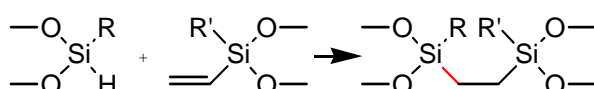


Platinum Catalysts for Hydrosilation

Hydrosilation (or hydrosilylation) is the addition of an H-Si bond across a double bond:



This reaction is used in the silicones industry to form cross-links in silicone polymers.

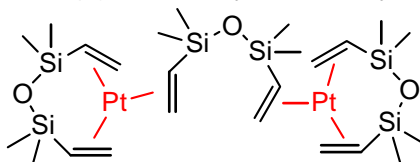


Platinum compounds are extremely active catalysts for hydrosilation. The catalyst is often used at such low levels that it is not separated from the product.

Originally, chloroplatinic acid was used as a hydrosilation catalyst (sometimes known as Speier's catalyst). However this compound is a potent sensitiser and is hazardous to health. Chloroplatinic acid contains platinum in oxidation state IV which must be reduced before it becomes catalytically active. This results in an induction period.

Platinum(II) compounds such as Karstedt catalyst, platinum chloride olefin complex and Pt-96 [PtCl₂(cyclooctadiene)] are active without an induction period, providing advantage over chloroplatinic acid.

Karstedt catalyst is a compound of platinum(0) and divinyltetramethyldisiloxane:



It is supplied in solution for easy dosing and formulation. Johnson Matthey can formulate Karstedt solution to control catalyst concentration, stability, viscosity and inhibition. Our Karstedt catalyst is a pale solution designed to give low turbidity on formulation.

Product Code	Product	Properties	Applications
189123	Karstedt solution in DVTMS CAS 68478-92-2	9% Pt in solution	Dyes, preservatives, gels, foams, aerosols, pharmaceuticals, adhesives, encapsulants, hair/skin care, dental, release coatings
189129	Karstedt solution in TVTMS CAS 68478-92-2	2% Pt in solution	Impression materials (dental applications)
189126	Platinum chloride olefin complex	4% Pt in solution	Coatings, adhesives, sealants
189096	Pt-96 [PtCl ₂ (cyclooctadiene)] CAS 12080-32-9	52% Pt; solid	

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Karstedt Catalyst

Catalyst for Addition Curing Crosslinking Reaction Between Si-Vinyl and SiH-groups

Product Benefits

- High stability platinum formulation with low colour and turbidity.
- Karstedt Catalyst promotes the hydrosilylation reaction in addition cure systems.
- Crosslinking between the vinylsiloxane and silyl occurs at temperatures below 50 C with no byproduct formation.

Product Use

- Karstedt catalyst promotes a quick, low temperature curing in the formation of silicone elastomers.
- Johnson Matthey can provide formulations to meet specific requirements for activity, stability and viscosity.

General Description

- This catalyst is a solution of platinum as a divinyltetramethyldisiloxane complex.

Chemical Properties (Typical)

Product Code	189123	189129
Solvent system	Divinyltetramethyldisiloxane	1,3,5,7-tetravinyltetramethyl-cyclotetrasiloxane
CAS number	68478-92-2	68478-92-2
Form	Liquid	Liquid
Platinum content	8-11 %	1-3 %
Colour / Turbidity	Yellow / Clear	Yellow / Clear
Setting time	Fast	Slow

Shipping & Handling

- Avoid contact with skin and clothing. Flammable. Keep container closed. Use only with adequate ventilation. Avoid eye contact. Keep away from heat, sparks and flame. Please refer to the relevant Material Safety Data Sheet for further information.

Literature References

- US patent number 3,775,452
- US patent number 4,288,345 A. Ashby et al.

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Platinum olefin chloride complex

Catalyst for Addition Hydrosilylation Reaction between Vinyl and Silane Groups.

Product Benefits

- Platinum chloride promotes the hydrosilylation reaction in addition systems.
- Addition between the vinyl and silane occurs below 50 C.
- Solution remains stable at high temperature

Product Use

- Platinum chloride promotes a quick, low temperature reaction in the formation of silanes.

General Description

- This catalyst is 4 % platinum as a chloride olefin complex in olefin solvent (based in customer's requirements.)

Chemical Properties (Typical)

Product code	189126
Form	Liquid
Platinum content	3 - 5 %
Colour	Red-brownish
Turbidity	Clear

Shipping & Handling

- Avoid contact with skin and clothing. Flammable. Keep container closed. Use only with adequate ventilation. Avoid eye contact. Keep away from heat, sparks and flame. Please refer to the relevant Material Safety Data Sheet for further information.

Literature References

- US patent number 3,159,601, Ashby
- EU patent number 1,293,534 B1, Hakuta et al.

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